

# Primary tuberculous granuloma in axillary lymph node draining breast cancer: A rare coincidence and review of recent literature

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## ABSTRACT

Enlarged axillary lymph nodes in case of breast carcinoma patients are not always due to metastases and can be reactive in nature. Very rarely enlarged axillary lymph nodes may be due to reactivated dormant axillary tubercular lymphadenitis. A case of infiltrating ductal carcinoma of breast along with metastasis to axillary lymph node harboring primary tubercular granuloma in the same lymph node is being reported due to rarity.

**Key words:** Breast carcinoma, metastasis, tubercular granuloma

## INTRODUCTION

Primary pulmonary as well as extra-pulmonary tuberculosis is quiet common in India. Tuberculous lymphadenitis is the commonest form of extrapulmonary tuberculosis with special affinity for cervical, mediastinal, and axillary lymph-nodes. Since breast is resistant to growth of *Mycobacterium tuberculosis*, its primary involvement by tuberculosis is uncommon though, carcinoma and tuberculosis in same breast have been reported off and on.<sup>[1]</sup> The first ever case of association of carcinoma and tuberculosis was reported by Bayle in 1810.<sup>[2-4]</sup> Kaplan *et al.*, (1974) reviewed 58,245 patients with cancer and identified 201 cases of coexisting tuberculosis. Among 14,742 cases of breast diseases reviewed, only 28 had coexistence of tuberculosis in breast, a prevalence of 19/10,000. No case of axillary nodal coexistence was identified in their series.<sup>[5]</sup> Coexistence of tuberculosis and breast cancer in

same patient was first described in 1899 by Warthin<sup>[4]</sup> and later by other authors.<sup>[1]</sup> Primary breast cancer and axillary node tuberculosis can coexist,<sup>[6,7]</sup> but metastatic breast cancer to axillary lymph node harboring primary tubercular granuloma is extremely rare. Only nine similar cases have been reported in literature so far.<sup>[8-14]</sup> We encountered such an unusual combination of infiltrating ductal carcinoma of breast with metastases to axillary lymph node harboring tuberculous granuloma. There was no evidence of tuberculosis elsewhere in the body. Hereby, we report such a case of rare association.

## CASE REPORT

A 57-year-old female presented with a hard, irregular mass in upper and outer quadrant of left breast for the last six months. It was rapidly growing for the last one month. There was neither a family history of breast carcinoma nor of any history of taking estrogen therapy or oral contraceptive. But there was a definite family history of pulmonary tuberculosis. Physical examination revealed a hard, irregular mass of 7 × 6 cms size in upper outer quadrant of left breast. Mass was adherent to over lying skin not to underlying structures. Hard, mobile and non tender lymph nodes were palpable in the left axilla. Contralateral breast and axilla were normal. Supraclavicular lymph nodes were not palpable. Chest X-ray and abdomen ultrasound

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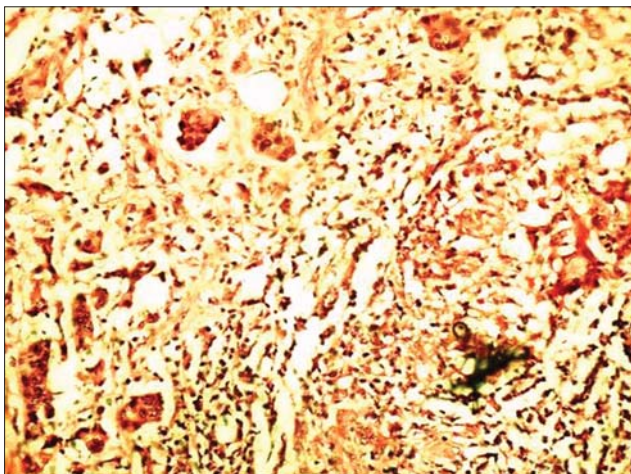
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were normal. Fine needle aspiration cytology (FNAC) of the breast mass revealed ductal cell carcinoma with clinical stage III (T3 N2 M0). Modified radical mastectomy with axillary node dissection was done. Histopathology of resected breast specimen revealed infiltrating ductal carcinoma. Out of 21 dissected lymph nodes, only two of the nodes revealed caseating epithelioid-cell granuloma with Langhans' giant cells along with metastatic carcinoma [Figure 1]. Ziehl-Nelsen Stain for acid-fast bacilli (AFB) was positive. The tumor was negative for estrogen and progesterone receptors. As there was no suspicion of tuberculosis, Mantoux test, erythrocyte sedimentation rate ESR or polymerase chain reaction (PCR) were not done in preoperative period. Post-operatively, patient was put on antituberculosis therapy (Raphampicin and INH combination, Ethambutol, pyrazinamide) along with six cycles of adjuvant chemotherapy consisting of cyclophosphamide, methotrexate, and 5-fluorouracil (CMF) followed by adjuvant radiotherapy to chest wall and supraclavicular fossa. The patient is doing well and is disease free after one year of follow-up.

## DISCUSSION

Co-existence of metastatic deposits and tuberculosis in the same regional lymph-node is extremely rare and countable cases have been cited in the available world literature. Although axillary tuberculous lymphadenitis secondary to BCG vaccination or pulmonary and cutaneous tuberculosis is not uncommon in children, but primary or isolated axillary lymph node involvement in adults without clinical evidence of any other organ or systemic involvement is extremely rare.<sup>[11]</sup> When it is impossible to pinpoint exact cause of infection, the only possible hypothesis of this finding could be activation process of quiescent tubercular infection of axillary lymph node due



**Figure 1:** Section of lymph node showing metastatic ductal carcinoma and granulomatous focus composed of epithelioid cells with acid fast bacilli (H and E  $\times 250$ )

to immuno-suppression in cancer patients.<sup>[9]</sup> It may also be either a retrograde spread from the mediastinal nodes or haematogenous spread from a subclinical focus, not picked up by routine investigations.<sup>[11]</sup> Thorough investigation of our patient did not reveal any evidence of pulmonary or other extrapulmonary tuberculosis, similarly to a few cases reported previously.<sup>[8,10,11,13]</sup> Since tuberculosis was not suspected preoperatively, Mantoux test, ESR and polymerase chain reaction (PCR) were not done.<sup>[14]</sup>

No doubt, tuberculous lymphadenitis is the most common form of extrapulmonary tuberculosis,<sup>[11]</sup> but it should be differentiated from other clinical entities that may present with areas of granulomatous reaction in lymph nodes. An immune mechanism against infections, nonneoplastic and neoplastic conditions results in granulomatous reaction in draining lymph nodes.<sup>[15,16]</sup> Granulomatous reaction can also result due to infective agents such as mycobacteria, fungi, parasites, brucellosis, and due to non infective conditions, such as sarcoidosis, foreign bodies, Wegener's granulomatosis and traumatic fat necrosis.<sup>[16,17]</sup>

Granulomatous responses in primary tumor parenchyma or in lymph nodes draining from the region is found associated with certain type of tumors.<sup>[15,18-20]</sup> Reported incidence of granulomatous response is 4.4% of carcinomas, 13.8% of patients with Hodgkin's disease, and 7.3% of non-Hodgkin's lymphomas.

Epithelioid cell and sarcoid-like granulomas have been observed in regional lymph nodes and tumor stroma in a few cases of breast cancer and the incidence is 0.7% for regional lymph nodes and 0.3% for tissue stroma.<sup>[21,22]</sup>

Coexistence of granulomatous axillary lymphadenitis and metastatic deposits from breast cancer can lead to difficulties in diagnosis and in proper treatment of both diseases because the simultaneous presence of axillary TB leads to clinical over staging of malignancy. Accurate diagnosis helps in down staging the disease and can prevent high mortality by identifying curable disease.<sup>[23]</sup> In these cases, where morphological features are confusing, PCR-based assays are relatively sensitive and rapid in the detection of *Mycobacterium tuberculosis*.<sup>[12]</sup> However, caseating necrosis is seen only in tuberculous inflammation.

## CONCLUSION

In breast carcinoma, regional nodal metastatic involvement is the most common occurrence; however, carcinomatous deposits and tuberculosis in the same lymph-node is an unusual finding. Though, such a combination is extremely rare, yet it should be kept in the back of mind particularly in endemic countries, like India. Since the presence of

tuberculosis may alter the postoperative management of the patient, a thorough investigation for tuberculosis is mandatory.

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